

Claims

1. An actuator, in particular for components of a motor vehicle such as an electric seat adjuster or the like, comprising a drive motor (1) and a reduction gear (2), wherein the reduction gear (2) comprises a housing (3), a wobble plate (4), a driven wheel (6) interacting by means of a toothing (5) with the wobble plate (4), and a guide device (7) for the wobble plate (4), and wherein the wobble plate (4), by means of the guide device (7), is secured essentially against rotation relative to the housing (3) and allowed to move on a circular path (8) for performing a wobbling movement,
characterized in that the guide device (7) comprises a guide arm (52) that is in particular formed as a unitary part of the wobble plate (4), which guide arm by means of a radial guide (10) is secured to be a slidable in a radial direction (9) relative to the circular path (8) and is essentially secured against rotation.
2. The actuator according to claim 1,
characterized in that, for driving the wobble plate (4), an eccentric (20) with an eccentrically circulating bearing pin (21) is provided, which eccentric engages a particularly centrally arranged bearing opening (22) of the wobble plate (4).
3. The actuator according to claim 1 or 2,
characterized in that a worm gear (26) is provided for driving the eccentric (20).
4. The actuator according to claim 1 to 3,
characterized in that the guide arm (52) of the wobble plate (4) is configured as a swivel arm (12) whose radially outwardly positioned free end (13) is supported on a swivel support (11) of the radial guide (10).

5. The actuator according to claim 4,
characterized in that the free end (13) of the swivel arm (12) engages a radial
groove (14) fixed to the housing.
- 5 6. The actuator according to claim 5,
characterized in that the free end (13) of the swivel arm (12) has a rounded
widened swivel head (15) that is guided slidingly between two parallel walls
(16, 17) of the radial groove (14).
- 10 7. The actuator according to claim 6,
characterized in that by means of the parallel walls (16, 17) of the radial
groove (14) a guide section (18) is formed that is adjoined radially inwardly
by a swivel section (19) that widens inwardly.
- 15 8. The actuator according to one of the claims 1 to 3,
characterized in that the free end (13) of the guide arm (52) is forcibly guided
on a circular path synchronously to the wobbling movement of the wobble
plate (4) on its circular path (8).
- 20 9. The actuator according to claim 8,
characterized in that for forced guiding of the free end (13) of the guide arm
(52) an additional eccentric (54) is provided having an eccentrically
circulating bearing pin (55) that engages a bearing opening (56) of the free
end (13).
- 25 10. The actuator according to claim 9,
characterized in that the two eccentrics (20, 54) are arranged on opposite
sides of the worm gear (26) and are driven by the worm gear.
- 30 11. The actuator according to claim 9,
characterized in that the two eccentrics (20, 54) are staggered in axial

direction of the worm gear (26) on the same side of the worm gear (26) and are driven by th worm gear.

12. The actuator according to claim 11,
5 characterized in that the wobble plate (4) is provided with a guide arm (55), extending in two oppositely oriented radial directions and having two opposed free ends (13, 13'), and is arranged, in particular approximately centrally, between the two eccentrics (20, 54), wherein the two free ends (13, 13') of the guide arm (52) are forcibly guided on the correlated eccentric (20,
10 54), respectively.

13. The actuator according to one of the claims 8 to 12,
characterized in that on both ends of the guide arm (52) a wobble plate (4, 67) is arranged, respectively, for driving a driven wheel (6, 71), respectively.

14. The actuator according to one of the claims 2 to 13,
characterized in that the eccentric (20) is rotatably supported on a continuous axle bolt (23) manufactured in particular from steel, wherein the bearing pin (21) is sized with regard to its diameter such that the axle bolt (23) is located
20 within the circumferential contour of the bearing pin (21).

15. The actuator according to claim 14,
characterized in that the bearing pin (21) is manufactured in particular as a unitary part of the eccentric (20) from self-lubricating plastic material, wherein
25 the bearing pin (21) has a metal insert (25) arranged in an area oriented in the direction of eccentricity (24) and supported on the axle bolt (23).

16. The actuator according to claim 14 or 15,
characterized in that the driven wheel (6) is supported together with the
30 eccentric (20) on the axle bolt (23).

17. The actuator according to one of the claims 1 to 16,
characterized in that the driven wheel (6) has an external bearing surface
(27) by means of which the driven wheel (6) is rotatably supported in the
housing (3).

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18. The actuator according to one of the claims 1 to 17,
characterized in that the gear wheel (28) formed integrally on the wobble
plate (4) is formed by stamping a metal blank.

10 19. The actuator according to one of the claims 1 to 18,
characterized in that fastening screws (65) embodied in particular as collar
screws penetrate the housing (3) of the reduction gear (2), which housing is
made in particular from plastic material, across at least approximately its
entire thickness and are provided for screwing the housing (3) to the
15 component to be driven by the actuator.

20. The actuator according to claim 19,
characterized in that the housing (3) is comprised of a bottom part (34) and a
cover part (35), wherein the fastening screws (65) extend through the bottom
20 part (34) and the cover part (35).

21. The actuator according to claim 19 or 20,
characterized in that at least two of the fastening screws are arranged on a
line (59) that is positioned at an angle (α) of at least approximately 45 ° to an
25 axis of rotation (29) of the drive motor (1) or a drive worm (31), wherein the
driven wheel (6) is preferably positioned between the two fastening screws.